EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 1-52

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-09-027	Base 4/1/2010 to 3/31/2011 Option Period Number period 1	Det. of EFs from OB/OD Military Ordn

Contractor: ARCADIS US

Specify Section and Paragraph of Contract SOW:

Purpose:
☒ Work Assignment ☐ Work Assignment: Close-Out
☐ Work Assignment Amendment ☐ Incremental Funding
☐ Work Plan Approval

Period of Performance: From 4/1/10 To 3/31/11

Comments: WA 1-52 is a continuation of WA 0-52, an IA-funded by SERDP as RW-96-95768701-1, 26CFXA7, OMIS # not yet assigned. Funds are carryover from WA0-52.

☐ Superfund — Accounting and Appropriations Data — ☐ Non-Superfund

Note: To report additional accounting and appropriations data use EPA Form 1900-69A

SFO (Max 2): 22

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount: (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Contract Period	Cost/Fee	LOE
This Action:			
Total:			

Work Plan / Cost Estimate Approvals

Contractor WP Dated:	Cost/Fee:	LOE:
Cumulative Approved:	Cost/Fee:	LOE:

Work Assignment Manager Name: CN=Brian Gullett/OU=RTP/O=USEPA/C=US (Signature)	03/30/2010 (Date)	Branch/Mail Code: APPCD Phone Number: 919-541-1534 FAX Number:
Project Officer Name: Diane L. Pierce Diane L Pierce (Signature)	3/31/10 (Date)	Branch/Mail Code: TSB Phone Number: 919-541-2708 FAX Number:
Other Agency Official Name: Frank Princiotta Frank Princiotta (Signature)	3-30-10 (Date)	Branch/Mail Code: APPCD Phone Number: 919-541-2824 FAX Number:
Contracting Official Name: Renita. Tyus Renita Tyus (Signature)	3/31/10 (Date)	Branch/Mail Code: CPOD Phone Number: 513-487-2094 FAX Number:

Work Assignment Form: (WebForms v1.0)

Work shall not start on this work assignment until 04/01/10.

Work Assignment 1-52

Statement of Work

Determination of Emission Factors from Open Burning and Open Detonation of Military Ordnance

I. BACKGROUND

U.S. Department of Defense (DOD) Installations, especially demilitarization facilities and Army Ammunition Plants (AAPs), have used Open Burning/Open Detonation (OB/OD) for a long time as a safe and economic means to dispose of propellants, explosives, and munitions. DOD installations are required to comply with the Resource Conservation and Recovery Act (RCRA) to operate OB/OD facilities. RCRA permits provide annual limits on the amount of energetic materials that can be disposed of at OB/OD facilities. The permit limitations are based on human heath risk assessments that include risk estimates from airborne exposure to pollutants generated from OB/OD. These assessments use emission factors developed mostly from a limited number of tests on small scale OB/OD chambers, known as a "bang box." Emission factors developed from bang box tests have been challenged because of the potential differences between real world field situations and bang box test results. Some RCRA permit holders consider the permit conditions to be overly stringent because bang box data are too conservative and incomplete.

II. PURPOSE

The objectives of this project are to develop and apply methods for sampling OB/OD events in the field to characterize gaseous and particulate matter (PM) air emissions for the determination of emission factors.

The project, funded by an Intergovernmental Agreement (IA) with the Strategic Environmental Research and Development Program (SERDP) will provide essential information on recommended methodology for future experimental determinations / verifications of emission factors and will nominate emission factors for these processes.

Background Information and **Special Instructions**

- Results from this project will assist DOD in characterizing emissions from military OB/OD; determine the validity of past OB/OD emission factor work, especially "Bang Box" simulation data; enhance the database of OB/OD information; and develop a firm scientific basis to comply with environmental regulations while proactively protecting human health and the environment.

- The Contractor is expected to use government furnished equipment (GFE) for the work. This shall include aerial sampling equipment, ground-based sampling equipment, the organic support analytical laboratory equipment, and related support equipment.

- Facility operating manuals for the above-mentioned devices shall be followed. Analytical methods and sampling procedures shall follow EPA protocols where practical and

applicable.

- If sufficient funds are deemed available by the WAM and CO, the contractor shall send qualified personnel to at least one nationally-known conference for presentation of related results.

- The Contractor is advised that the output of this programmatic effortwill be reports to the DoD as well as scholarly, peer-review journal publications.

- It is the intention of this program to provide the scientific community, the DoD, and the EPA regulatory community with information regarding these pollutants that shall enable sound, scientific decisions to be made regarding emissions and risks from OB/OD.

III. STATEMENT OF WORK

(1). The contractor shall modify the existing quality assurance plan for sampling OB/OD events at the Tooele, Utah, Army Ammunition Centerbased on information gained from past sampling under WA 0-52.

- After preparation, the modified QAPP shall be reviewed and approved by the ARCADIS work assignment leader and QA officer. Once it has obtained their approval, it shall be submitted to the EPA QA staff for review and approval. It shall be accompanied by a signature page that is signed by the ARCADIS work assignment leader and QA officer to show that they have reviewed and approved the QAPP. It is the responsibility of the ARCADIS work assignment leader to document this process. Upon receipt of the signed QAPP, the EPA work assignment manager and QA manager will review and approve the QAPP and they will add their signatures to the signature page. Work involving environmental data shall not commence until the QAPP has received official approval from the EPA QA staff.

(2) The contractor shall assist in the analysis of samples taken from the Tooele test, at the discretion of the WAM.

(3) The Contractor shall assist in data analysis and report writing at the discretion of the WAM.

Additional instructions shall be conveyed in writing by the WAM in accordance with the "Technical Direction" clause.

Reporting.

The Contractor shall ensure that all reporting requirements as specified by the Contract are met.

Quality Assurance.

The Contractor shall adhere to and ensure that all applicable QA/QC and safety and health rules and requirements are met. Since this work covers both development/adaptation of sampling methods to new, unsampled sources and measurement to determine emission factors, the contractor shall develop quality assurance documentation as required for both Method Development projects and Measurement Projects (see Attachment #1 and #2) to this Statement of Work. Work involving environmental data shall not commence until the quality assurance documentation has received official approval from the EPA Quality Assurance Staff.

Additional

Additional instructions will be conveyed in writing by the WAM in accordance with the "Technical Direction" clause.

IV. DELIVERABLES AND SCHEDULE

Deliverables

1. Weekly Meetings and E-Mail Reports: The WAM and contractor's project manager shall hold biweekly project meetings to discuss Task-specific progress, issues, and action items. The contractor project manager shall send an e-mail report to the WAM within one business day of this meeting, unless otherwise specified by the WAM. The e-mail report shall:

- Specify work goals and priorities for each Task under this work assignment;
- Document action item issues planned in the last weekly meeting for each Task;
- Specify the status of outstanding Task-specific test plans, QA plans, and safety plans; and
- Itemize issues and concerns that need resolution for each Task.

2. Monthly Task Progress and Cost Reports: The contractor's monthly report to EPA shall summarize work activities (accomplished and planned) for each Task inthis work assignment, including the status of applicable test, QA, and safety plans. The monthly report shall also detail labor costs and ODC charges.

3. Health and Safety Protocols: Health and safety protocols for each Task shall be updated or prepared as required by the EPA ERC and APPCD safety personnel. These protocols shall be approved by the WAM and safety personnel prior to the conduct of any testing.

4. Quality Assurance Project Plan (QA/QC) and Test Plans The contractor shall perform the activities described in these Tasks with reference to the QAPPs entitled

- U.S. EPA Evaluation of Dioxin Emissions Pre-testing Phase,
- Burning CCA-Treated Wood in the Open Burn Test Facility (OBTF),
- Development of analysis methods for the study of PCDD/FTEQ indicators, and
- Evaluation of Dioxin-Like Emissions from Residential Wood Combustion.

5. Facility Manual(s): Relevant manuals shall be reviewed, updated, and approved as specified in QA requirements for facility manuals provided by the EPA QA ofice.

6. RCRA Compliance reports for activities conducted in the RCRA and Air permitted facility (as relevant): These reports shall be provided to the WAM and EPA personnel responsible for the permitted facility, upon request.

V. MILESTONES

The following milestones are identified:

- 20 days after WA receipt. The Contractor shall prepare a Work Plan and deliver to the PO and WAM.
- May 30, 2010. The Contractor shall prepare a revised draft QA plan. Updated plans shall be delivered to the WAM.
- May 30, 2010. The Contractor shall complete all analytical determinations, data analyses, and draft report writing as directed by the WAM.
- December 31, 2010. The Contractor shall complete final report writing as directed by the WAM.

Attachment 1. NRMRL QAPP REQUIREMENTS FOR MEASUREMENT PROJECTS

GENERAL REQUIREMENTS: Include cover page, distribution list, approvals, and page numbers.

0. COVER PAGE

Include the Division/Branch, project title, revision number, EPA technical lead, QA category, organization responsible for QAPP preparation, and date.

1. PROJECT DESCRIPTION AND OBJECTIVES

1.1 Describe the process and/or environmental system to be evaluated.
1.2 State the purpose of the project and list specific project objective(s).

2. ORGANIZATION AND RESPONSIBILITIES

2.1 Identify all project personnel, including QA, and related responsibilities for each participating organization, as well as their relationship to other project participants.
2.2 Include a project schedule that includes key milestones.

3. SCIENTIFIC APPROACH

3.1 Describe the sampling and/or experimental design that will be used to generate the data needed to evaluate the projective objective(s). A description of the design should include the types and numbers of samples (including QC and reserve samples), the design of the sampling network, sample locations and frequencies, and the rationale for the design.
3.2 Identify the process measurements (e.g., flow rate, temperature) and specific targetanalytes(s) for each sample type.
3.3 Describe the general approach and the test conditions for each experimental phase.

4. SAMPLING PROCEDURES

4.1 Describe any known site-specific factors that may affect sampling procedures as well as all site preparation (e.g., sampling device installation, sampling port modifications, achievement of steady-state) needed prior to sampling.
4.2 Describe or reference each sampling procedure (including a list of equipment needed and the calibration of this equipment as appropriate) to be used. Include procedures for homogenizing, compositing, or splitting of samples, as applicable.
4.3 Provide a list of sample containers, sample quantities to be collected, and the sample amount required for each analysis, including QC sample analysis.
4.4 Specify sample preservation requirements (e.g., refrigeration, acidification, etc.) and holding times.
4.5 Describe the method for uniquely numbering each sample.
4.6 Describe procedures for packing and shipping samples, including procedures to avoid cross-contamination, and provisions for maintaining chain-of-custody (e.g., custody seals and records), as applicable.

5. MEASUREMENT PROCEDURES

5.1. Describe in detail or reference each process measurement or analytical method to be used. If applicable, identify modifications to EPA-approved or similarly validated methods.

5.2. If not provided in Section 5.1 or the referenced method, include specific calibration procedures, including linearity checks and initial and continuing calibration checks.

6. QUALITY METRICS (QA/QC CHECKS)

6.1. For each process measurement and analytical method, identify the required QC checks (e.g., blanks, control samples, duplicates, matrix spikes, surrogates), the frequencies for performing these checks, associated acceptance criteria, and corrective actions to be performed if acceptance criteria are not met.

6.2. Any additional project-specific QA objectives (e.g., completeness, mass balance) shall be presented, including acceptance criteria.

7. DATA ANALYSIS, INTERPRETATION, AND MANAGEMENT

7.1 Identify the data reporting requirements, including data reduction procedures specific to the project and applicable calculations and equations.

7.2 Describe data validation procedures used to ensure the reporting of accurate project data.

7.3 Describe how the data will be summarized or analyzed (e.g., qualitative analysis, descriptive or inferential statistics) to meet the project objective(s).

7.3.1 If descriptive statistics are proposed, state what tables, plots, and/or statistics (e.g., mean, median, standard error, minimum and maximum values) will be used to summarize the data.

7.3.2 If an inferential method is proposed, indicate whether the method will be a hypothesis test, confidence interval, or confidence limit and describe how the method will be performed

7.4 Describe data storage requirements for both hard copy and electronic data.

8. REPORTING

8.1 List and describe the deliverables expected from each project participant responsible for field and/or analytical activities.

8.2 Specify the expected final product(s) that will be prepared for the project (e.g., journal article, final report).

9. REFERENCES

Provide references either in the body of the text as footnotes or in a separate section.

Attachment 2. NRMRL QAPP REQUIREMENTS FOR METHOD DEVELOPMENT PROJECTS

GENERAL REQUIREMENTS: Include cover page, distribution list, approvals, and page numbers.

0. COVER PAGE

Include the Division/Branch, project title, revision number, EPA technical lead, QA category, organization responsible for QAPP preparation, and date.

1. PROJECT DESCRIPTION AND OBJECTIVES

1.1 Provide a description of the situation that requires the generation of a new or modified method
1.2 State the purpose of the project and list specific project objective(s).

2. ORGANIZATION AND RESPONSIBILITIES

2.1 Identify all project personnel, including QA, and related responsibilities for each participating organization, as well as their relationship to other project participants.
2.2 Include a project schedule that includes key milestones.

3. SCIENTIFIC APPROACH

3.1 Identify the specific analyte(s) of interest and the matrix/matrices under study.
3.2 Identify the analytical approach that will be used and how it will be optimized for this study Also describe any tests of interference and analyte stability.
3.2 Identify the method performance metrics (QA/QC checks) that will be used to evaluate the method, including the procedures used. These metrics could include (but are not limited to) positive and negative controls, sensitivity, precision, accuracy, recovery, linearity, specificity, robustness, and range.

4. SAMPLING PROCEDURES

4.1 Provide the requirements for samples that will be used to test the method (including matrix and presence/concentration of analytes).
4.2 If synthetic (i.e., laboratory-prepared) samples are used, describe the preparation of these samples.
4.3 If non-synthetic (i.e., real-world sample) samples are used, address the following:

- describe the sampling design that will be used and the steps taken to assure thatrepresentative samples are collected
- discuss or reference each sampling procedure
- provide a list of sample containers, sample quantities to be collected, and the sample amount required for each analysis, including QC sample analysis
- describe procedures for packing and shipping samples, and provisions for maintaining chain-of-custody, as applicable

4.4 Specify sample preservation requirements (e.g., refrigeration, acidification, etc.) and holding times.
4.5 Describe the method for uniquely numbering eachsample.

5. MEASUREMENT PROCEDURES

5.1 Describe in detail or reference each preparation or analytical procedure to be used, if known. Include steps for preparation, calibration, measurement, quality control, and reporting.

5.2 If not provided in Section 5.1 or the referenced method, include specific calibration procedures, including linearity checks and initial and continuing calibration checks.

6. METHOD PERFORMANCE METRICS

For each method performance metric (QA/QC check) identified in Section 32, specify the frequencies for performing these checks, associated acceptance criteria, and corrective actions to be performed if acceptance criteria are not met.

7. DATA ANALYSIS, INTERPRETATION, AND MANAGEMENT

7.1 Identify the data reporting requirements, including data reduction procedures specific to the project and applicable calculations and equations.

7.2 Describe data validation procedures used to ensure the reporting of accurate project data.

7.3 Describe how the data will be summarized or analyzed (e.g., qualitative analysis, descriptive or inferential statistics) to meet the project objective(s).

7.3.1 If descriptive statistics are proposed, state what tables, plots, and/or statistics (e.g., mean, median, standard error, minimum and maximum values) will be used to summarize the data.

7.3.2 If an inferential method is proposed, indicate whether the method will be a hypothesis test, confidence interval, or confidence limit and describe how the method will be performed.

7.4 Describe data storage requirements for both hard copy and electronic data.

8. REPORTING

8.1 List and describe the deliverables expected from each project participant.

8.2 Specify the expected final product(s) that will be prepared for the project (e.g., journal article, final report, etc.). If a method/SOP will be developed, specify the required format.

9. REFERENCES

Provide references either in the body of the text as footnotes or in a separate section.